

WHAT IS CLAIMED IS:

1. A driving apparatus for at least one recording head, the apparatus comprising:

a first waveform signal receiver that receives, through signal lines, a plurality of waveform signals representing various recording modes;

a first drive signal provider that generates drive signals on the basis of the plurality of waveform signals received by the first waveform signal receiver, and supplies the drive signals to one of recording element groups included in the at least one recording head;

a first delay circuit that delays the waveform signals received by the first waveform signal receiver; and

a second drive signal provider that generates drive signals on the basis of the waveform signals delayed by the first delay circuit, and supplies the drive signals to another recording element group.

2. The driving apparatus according to claim 1, wherein the number of recording element groups is N that is a natural number of two or more, and

the apparatus comprises:

$(N-1)$ delay circuits, including the first delay circuit, connected to each other in series, each of the

delay circuits sequentially delays the waveform signals delayed by the first delay circuit; and

N drive signal providers, including the first and second drive signal providers, each of which generates drive signals on the basis of either the plurality of waveform signals received by the first waveform signal receiver or the waveform signals delayed by a corresponding one of the (N-1) delay circuits, and supplies the drive signals to a corresponding one of the recording element groups.

3. The driving apparatus according to claim 1, wherein the number of recording element groups is N that is a natural number of three or more, and

the apparatus further comprises:

second to (N-1)th delay circuits connected to the first delay circuit, the second to (N-1)th delay circuits further delaying the waveform signals delayed by the first delay circuit; and

third to N-th drive signal providers each of which generates drive signals on the basis of the waveform signals delayed by a corresponding one of the (N-2) delay circuits, and supplies the drive signals to another recording element group.

4. The driving apparatus according to claim 3,

wherein N is four or more and the second to (N-1)th delay circuits are connected to each other in series.

5. The driving apparatus according to claim 1, wherein the apparatus further comprises a second waveform signal receiver that receives, through signal lines, a plurality of waveform signals representing various recording modes, and

the first delay circuit selectively outputs, to the second drive signal provider, either the waveform signals obtained by delaying the waveform signals received by the first waveform signal receiver or the waveform signals received by the second waveform signal receiver.

6. The driving apparatus according to claim 1, wherein the degree of delay of the waveform signals by the first delay circuit is changeable.

7. The driving apparatus according to claim 1, wherein each of the first and the second drive signal providers receives image data for recording elements of a corresponding one of the recording element groups, and selects one of the plurality of waveform signals on the basis of the image data so as to generate and supply a drive signal to each of the recording elements of the corresponding group.

8. The driving apparatus according to claim 1,

wherein each of the plurality of waveform signals is for forming one dot, and the waveform signals differ from each other in at least one of the number of pulses, pulse width, and pulse height.

9. The driving apparatus according to claim 1, wherein each of the plurality of waveform signals is for forming one dot, and dots formed from the plurality of waveform signals are different from each other in tone.

10. An image recording apparatus comprising:
a waveform signal generator that generates a plurality of waveform signals representing various recording modes;

at least one recording head including a plurality of recording element groups; and

a driving apparatus that drives the at least one recording head,

the driving apparatus comprising:

a first waveform signal receiver that receives, through signal lines, the plurality of waveform signals generated by the waveform signal generator;

a first drive signal provider that generates drive signals on the basis of the plurality of waveform signals received by the first waveform signal receiver, and supplies the drive signals to one of the recording

element groups included in the at least one recording head;

a first delay circuit that delays the waveform signals received by the first waveform signal receiver; and

a second drive signal provider that generates drive signals on the basis of the waveform signals delayed by the first delay circuit, and supplies the drive signals to another recording element group.

11. The image recording apparatus according to claim 10, further comprising an image data generator that outputs, to each of the first and the second drive signal providers, image data for recording elements of a corresponding one of the recording element groups, wherein each of the first and the second drive signal providers selects one of the plurality of waveform signals on the basis of the image data so as to generate and supply a drive signal to each of the recording elements of the corresponding group.

12. The image recording apparatus according to claim 10, wherein the waveform signal generator generates the plurality of waveform signals repeatedly in constant printing cycles.